The doctor's side of the A-dec 500 system includes both the Traditional (model 532) and Continental® (model 533) delivery systems, the front-mount monitor (model 531), and self-contained water system.

The delivery system supplies and regulates the air and water used to operate dental handpieces, syringes, and accessories. The A-dec 532 and 533 delivery systems have been designed to mount only to the A-dec 511 chair and communicate with the entire A-dec 500 product line through the Data Communications System (DCS).

This section of the *A-dec Service Guide, Vol. II* contains the electrical and plumbing flow diagrams for the delivery systems, along with illustrations of exploded parts, troubleshooting and adjustments for all of the doctor's side modules.

For information on service parts, see the *Genuine A-dec Service Parts Catalog*, or contact A-dec customer service.

A-dec 500 Delivery System Components

The A-dec 500 delivery systems and front-mount monitor both mount to the A-dec 511 chair. This mounting structure provides left/right capabilities for both the delivery system and the monitor.

Item #	Description
1	Delivery system cover
2	Delivery system front cover
3	Touchpad
4	Brake handle
5	Flexarm
6	Front-mount arm
7	Flexarm hub
8	Front-mount casting

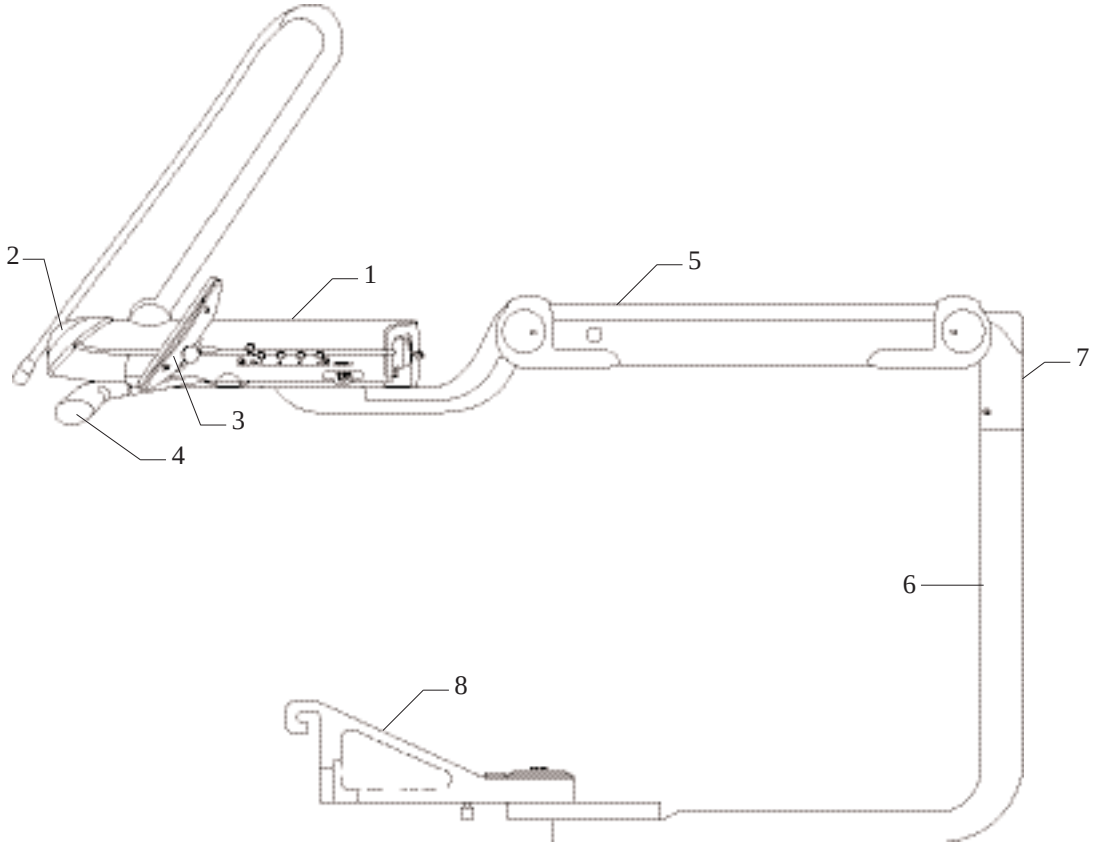


Figure 25. Delivery system and front-mount arm components.

Internal Control Components

The A-dec 532 and 533 delivery systems feature a structural platform in the base of the control head. This metal mounting grid allows easy attachment of component parts and extra control modules required by accessories.

Item #	Description
1	Scaler control module
2	Electric micromotor control module
3	Curing light control module
4	Camera control module
5	Control block
6	Delivery system circuit board
7	Touchpad
8	Accessory holder

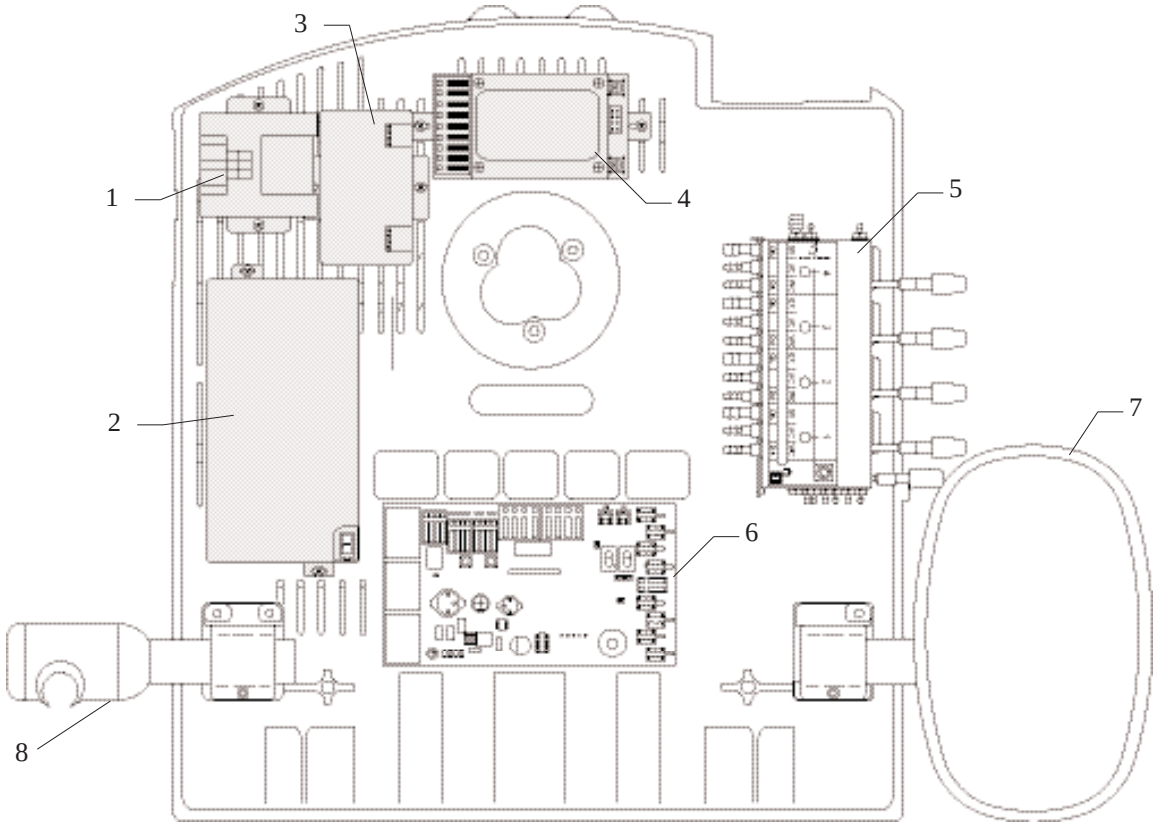


Figure 26. Identification of the internal control components mounted on the structural platform.

How to Remove the Delivery System Covers

The delivery system covers are designed for easy access to control components.

Delivery System Cover

Lift up on the center tab on the back of the delivery system cover and then, lift up the tabs on both sides of the delivery system cover and open the cover. Pinch the hinge brackets at the cover base to remove the cover.

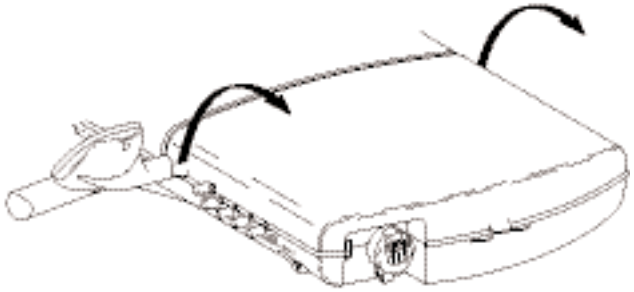


Figure 27. Open the delivery system cover.

Delivery System Front Cover — Continental

Move the whips forward, and remove the two screws holding the delivery system front cover in place. Open the front cover carefully, until the lanyard is taut.

CAUTION: Remove handpieces from the delivery system before opening the delivery system front cover.

Delivery System Front Cover — Traditional

Remove the two screws holding the delivery system front cover in place. Slide the front cover forward and lift up.

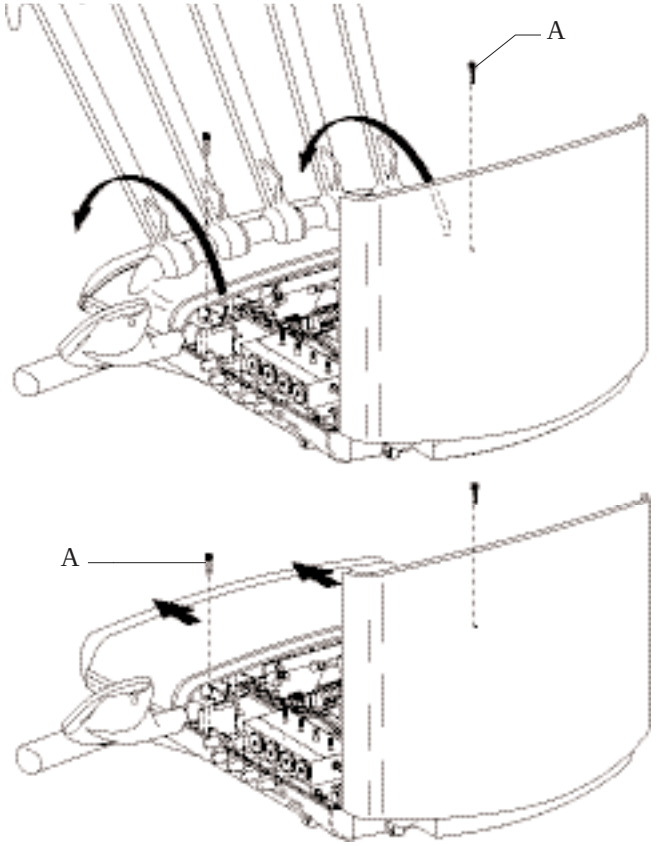
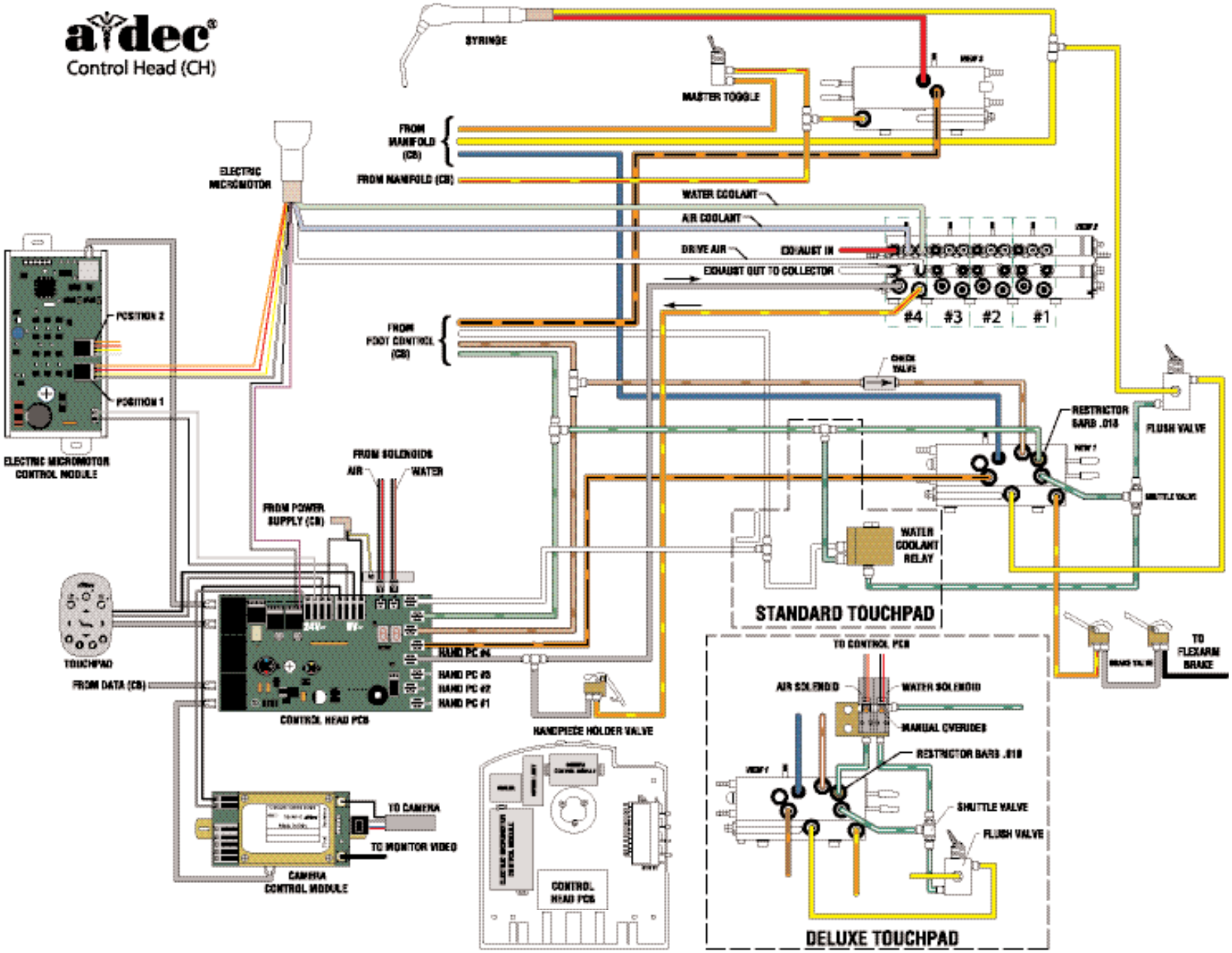


Figure 28. Open the delivery system front covers.
(A) screw

Delivery System Flow Diagram

This flow diagram details both electrical and plumbing information for servicing and troubleshooting A-dec 532 and 533 delivery systems. It is located on the inside cover of the delivery system. This diagram includes the plumbing and wiring for the standard touchpad, deluxe touchpad, camera, and electric micromotor.


Control Head (CH)
SYRINGE
MASTER TOGGLE
FROM MANIFOLD (CB)
FROM MANIFOLD (CB)
ELECTRIC MICROMOTOR
WATER COOLANT
AIR COOLANT
DRIVE AIR
EXHAUST IN
EXHAUST OUT TO COLLECTOR
#4
#3
#2
#1
POSITION 2
POSITION 1
ELECTRIC MICROMOTOR CONTROL MODULE
FROM FOOT CONTROL (CB)
CHECK VALVE
RESTRICTOR BARB .018
FLUSH VALVE
FROM SOLENOIDS
AIR
WATER
FROM POWER SUPPLY (CB)
WATER COOLANT RELAY
STANDARD TOUCHPAD
TOUCHPAD
FROM DATA (CB)
HAND PC #4
HAND PC #3
HAND PC #2
HAND PC #1
CONTROL HEAD PCB
HANDPIECE HOLDER VALVE
TO FLEXARM BRACE
TO CONTROL PCB
AIR SOLENOID
WATER SOLENOID
MANUAL OVERRIDE
RESTRICTOR BARB .018
SHUTTLE VALVE
FLUSH VALVE
TO CAMERA
TO MONITOR VIDEO
CAMERA CONTROL MODULE
CONTROL HEAD PCB
DELUXE TOUCHPAD

How to Identify Delivery System Circuit Board Components (P/N 90.1076.00)

The delivery system circuit board has a wide range of functionality with a built-in intraoral light source, drive air pressure digital readout, and status LEDs. Transducers translate air signals to electronic signals, communicating with the touchpad and other components when a handpiece is ready for use.

Item #	Description
1	**P1**, **P2**, **P3** - Data line ports (DCS)
2	**J6** - Scaler power terminal strip
3	**J4**, **J5** - Intraoral light source strip and LEDs DS7, DS8, DS9, DS10
4	**J2** - 24 VAC terminal strip
5	**J2** - Ø VAC terminal strip
6	**DS6** - Air coolant solenoid LED and connector
7	**DS5** - Water coolant solenoid LED and connector
8	**X8** - Water coolant signal transducer (foot control toggle)
9	**X7** - Air coolant signal transducer
10	**X6** - Accessory button (foot control) signal transducer
11	**X5** - Drive air signal transducer
12	**X4** - Handpiece 4, holdback transducer
13	**X3** - Handpiece 3, holdback transducer
14	**X2** - Handpiece 2, holdback transducer
15	**X1** - Handpiece 1, holdback transducer
16	**J3** - Handpiece 5, terminal strip
17	**DS11**, **DS12** - Drive air LED display
18	**DS1** - AC Power LED
19	**DS2** - Status LED
20	**DS3** - Data LED
21	**S2** - Increase intraoral light source voltage adjustment
22	**S1** - Decrease intraoral light source voltage adjustment
23	**DS13** - Scaler relay LED

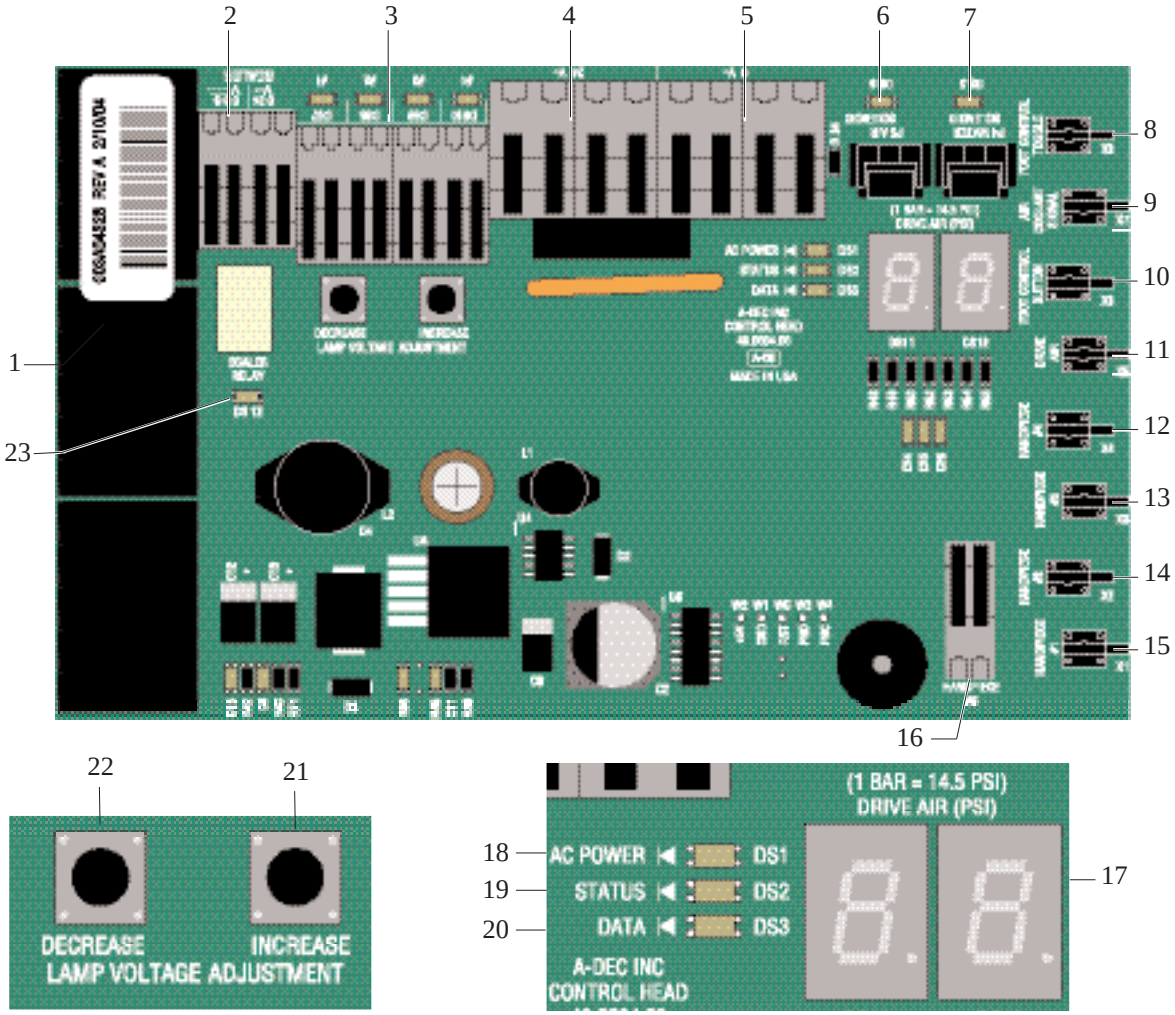


Figure 29. Components of the delivery system circuit board.

Handpiece Flush Toggle (P/N 33.0168.00)

The flush toggle is located on the back of the delivery system. It uses holdback air to operate the handpiece flush function. When the momentary valve is on, the holdback air is exhausted and air signal is sent toward the water cartridge.

If the handpiece is in the holder (holdback active), the flush will not be activated.

If the handpiece is out of the holder (holdback exhausted), the flush will operate.

Item #	Part Number	Description
1	006.009.00	Hex nut 15/32-32" x 9/16 x 3/32"
2	33.0036.02	Momentary toggle lever
3	030.003.02	O-ring, .056 ID x .060 W, pkg 10
4	013.076.00	Spring, compression, .360 OD x .35 FL
5	011.038.01	Straight pin, .062 Dia x .430 Lg, SS, pkg 5
6	023.004.03	Barb, 1/8" x 10-32, pkg 10
7	004.005.02	Flat nylon washer, .187 ID, pkg 10
8	33.01470.00*	Stem
9	80.5025.00*	Spacer

* Item not for sale.

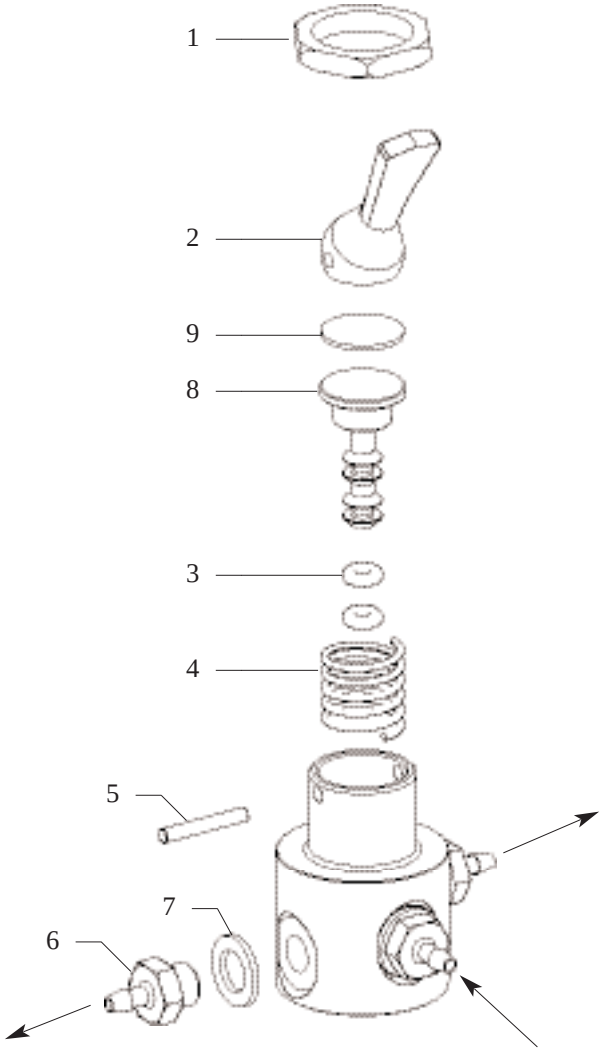


Figure 30. Identification of the handpiece flush toggle components.

Master On/Off Toggle (P/N 33.0048.04)

The master On/Off toggle is located on the side of the delivery system. The toggle operates with unregulated air and supplies air to the chair air/water manifold and the control block, for holdback air.

Item #	Part Number	Description
1	33.0050.00	Round toggle valve body
2	011.038.01	Straight pin, .062 Dia x .430, pkg 5
3	22.0040.00	Compression spring, .300 OD x .40
4	030.001.02	O-ring, pkg 10
5	29.0840.00	Valve stem with O-rings, 3-way
6	22.0462.02	Plastic toggle valve lever, Surf 4
7	006.009.00	Hex nut, 15/32-32" x 9/16 x 3/32"
8	006.069.00	Knurl nut, 15/32-32"

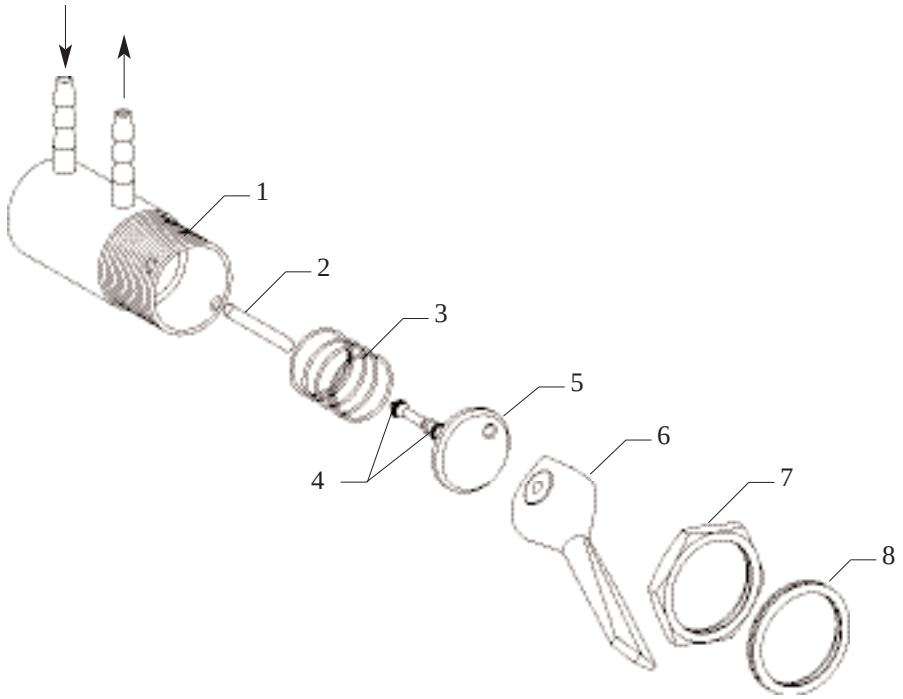


Figure 31. Identification of the master On/Off toggle components.

Whip Assembly (P/N 77.0291.01)

The whip return tension can be adjusted by placing the bail in two different locations.

The whip cover is removable for easy handpiece tubing replacement. To reinstall the whip cover, fully extend the whip and attach the back starting at the ball end and work toward the handpiece end.

Item #	Part Number	Description
1	013.123.00	Spring, extension, .460 OD x 2.473
2	77.0155.00	Bail
3	001.033.00	Socket head screw 6-32" x 3/8" stainless steel
4	77.0063.00	Whip cover, Surf 4

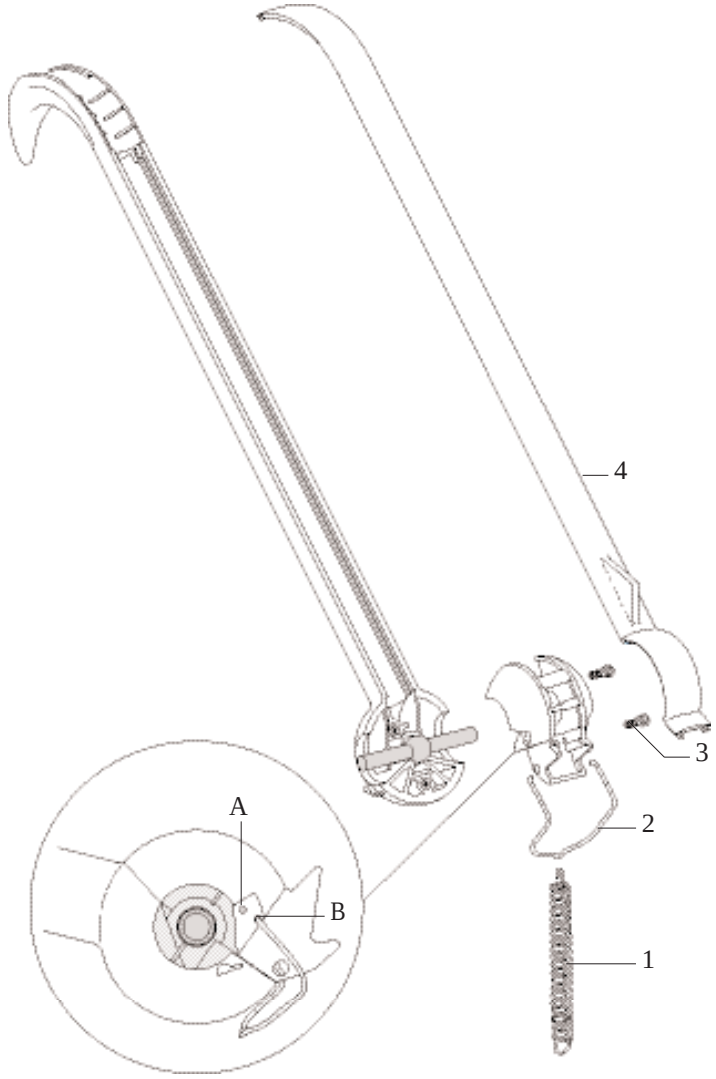


Figure 32. Whip assembly with the adjustable bail position for (A) greater tension or (B) lesser tension.

Autoclavable Syringe

The Continental and Traditional autoclavable syringes have serviceable air and water button valves. The tip retaining nuts have replaceable O-rings.

WARNING: Turn OFF and bleed the system of air and water before servicing the syringe.The use of disposable syringe tips in A-dec syringe tip nuts is not recommended.

Item #	Part Number	Description
1	23.0872.01	Syringe tip, pkg 5
2	035.048.01	O-ring, pkg 10
3	034.003.01	O-ring, pkg 10
4	23.1112.00	Retainer nut
5	23.1193.01	Screw, pkg 5
6	013.064.01	Spring, pkg 10
7	23.1232.01	Button valve, pkg 2
8	030.002.02	O-ring, pkg 10
9	23.1110.00	Terminal
10	23.1015.00	Handle
11	024.155.02	Tubing assembly, D-Surf, 7'

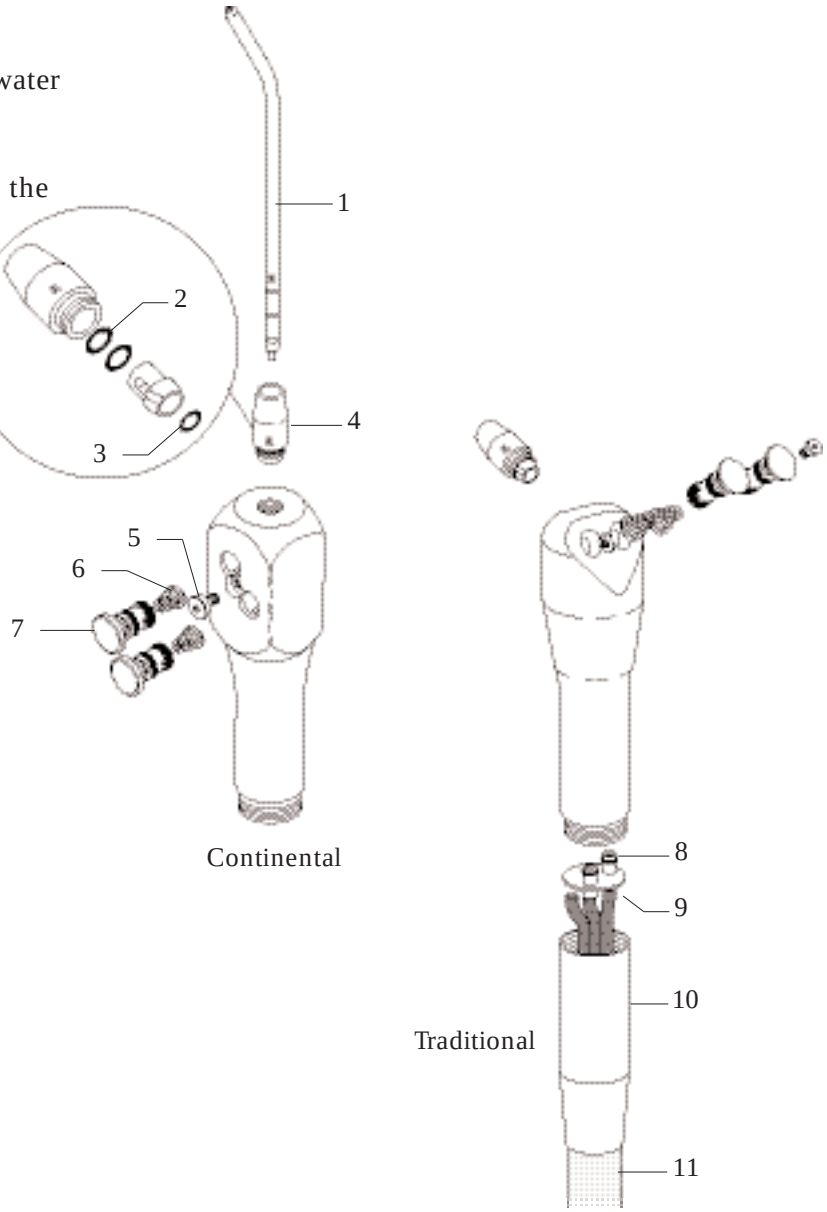


Figure 33. Identification of the autoclavable syringe components.

Brake Handle

The brake handle activates a replaceable microvalve, releasing pressure on the brake inside the flexarm.

Item #	Part Number	Description
1	77.0163.00	Brake button, Surf 6
2	013.121.00	Spring, torsion, stainless steel, .210 L, .030 W Dia
3	013.120.00	Spring, compression, .240 OD x .560

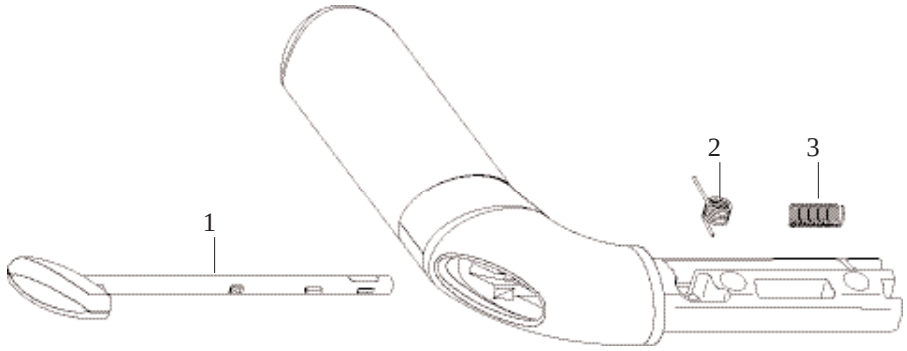


Figure 34. Identifying the brake handle components.

Accessory Holder
(P/N 99.0681.00 Standard or P/N 99.0684.00 Auto-electric)

The accessory holder is either an active or non-active position on the delivery system. It can be mounted on either side of the delivery system, opposite the touchpad.

Auto-electric holders have a power source at the terminal for handpiece position 5 on the delivery system circuit board.

Item #	Part Number	Description
1	99.0683.00	Auxiliary holder hub, Surf 4
2	99.0686.00	Rotation stopper
3	007.023.00	Setscrew, 1/4-20 x 3/4, soc cup pt
4	99.0653.01	Syringe/saliva ejector holder, Surf 4
5	99.0648.00*	End cap for holder assembly

* Item not for sale.

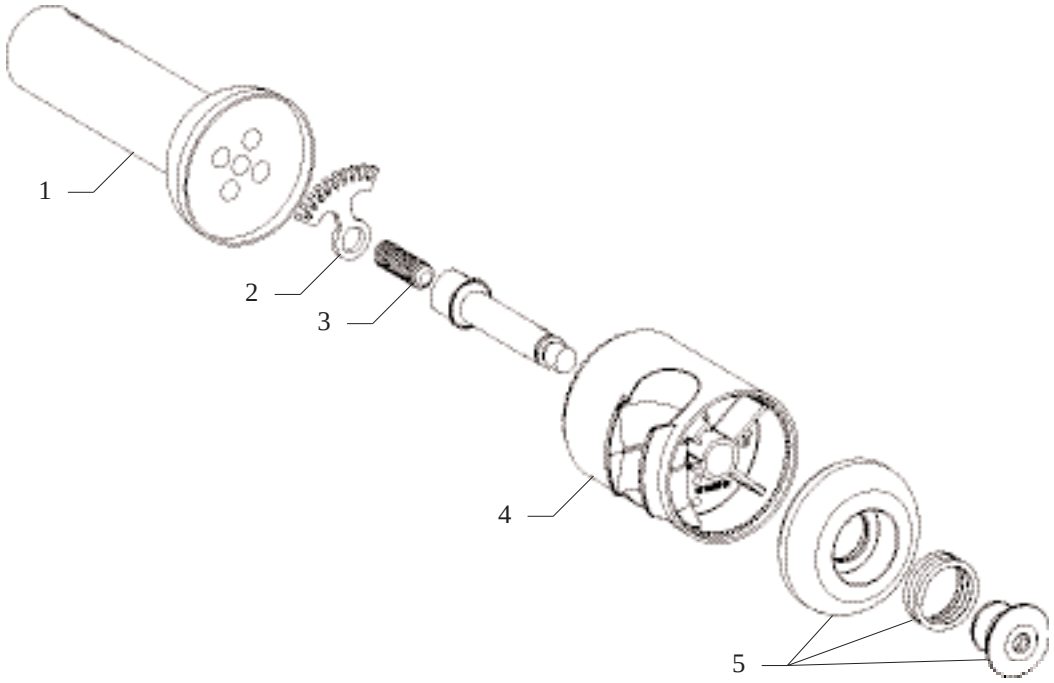
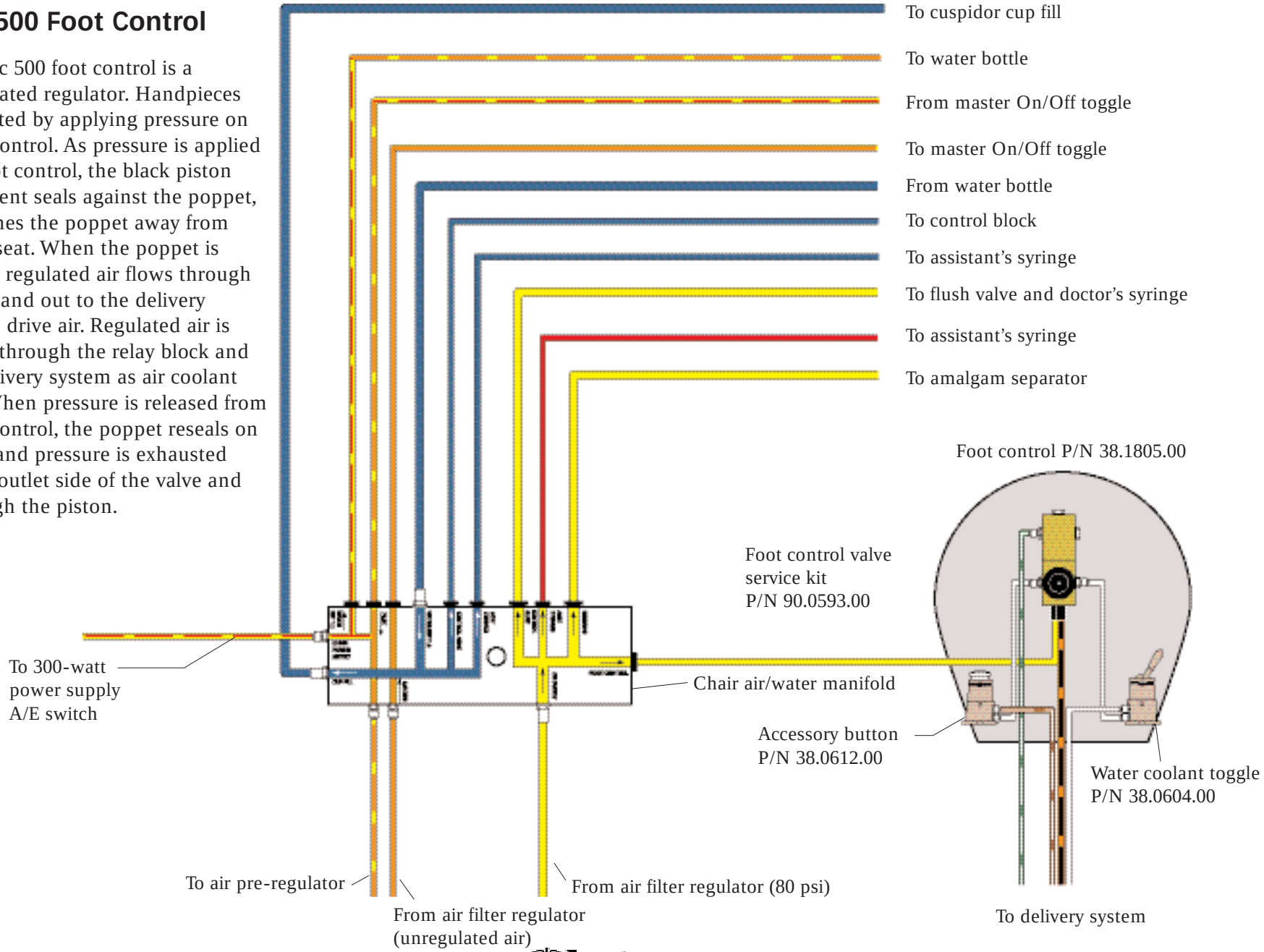


Figure 35. Identifying accessory holder components.

A-dec 500 Foot Control

The A-dec 500 foot control is a foot-operated regulator. Handpieces are operated by applying pressure on the foot control. As pressure is applied to the foot control, the black piston exhaust vent seals against the poppet, then pushes the poppet away from the inlet seat. When the poppet is unseated, regulated air flows through the valve and out to the delivery system as drive air. Regulated air is also sent through the relay block and to the delivery system as air coolant signal. When pressure is released from the foot control, the poppet reseals on the inlet and pressure is exhausted from the outlet side of the valve and up through the piston.


To cuspidor cup fill
To water bottle
From master On/Off toggle
To master On/Off toggle
From water bottle
To control block
To assistant's syringe
To flush valve and doctor's syringe
To assistant's syringe
To amalgam separator
Foot control P/N 38.1805.00
Foot control valve service kit P/N 90.0593.00
To 300-watt power supply A/E switch
Chair air/water manifold
Accessory button P/N 38.0612.00
Water coolant toggle P/N 38.0604.00
To air pre-regulator
From air filter regulator (80 psi)
From air filter regulator (unregulated air)
To delivery system

Foot Control
(P/N 38.1805.00)

Item #	Part Number	Description
1	22.0110.00	Cover
2	38.0076.00	Foam liner
3	38.0237.00	Black retaining ring,, 5" OD
4	38.1802.00	2-Hole housing, Surf 6, 5/16"
5	40.0689.00	Yellow plastic indicator
6	40.0691.00	Blue plastic indicator
7	38.0610.00	Accessory button, Surf 6
8	38.0604.00	Wet/dry toggle valve, Surf 6
9	003.031.00	Phillips head screw, #4 x 1/2", zinc
10	003.022.00	Phillips head screw, #6 x 1/2", zinc
11	003.078.00	Socket head screw, 4-40 1/4" zinc
12	38.0059.02	Base, Surf 6

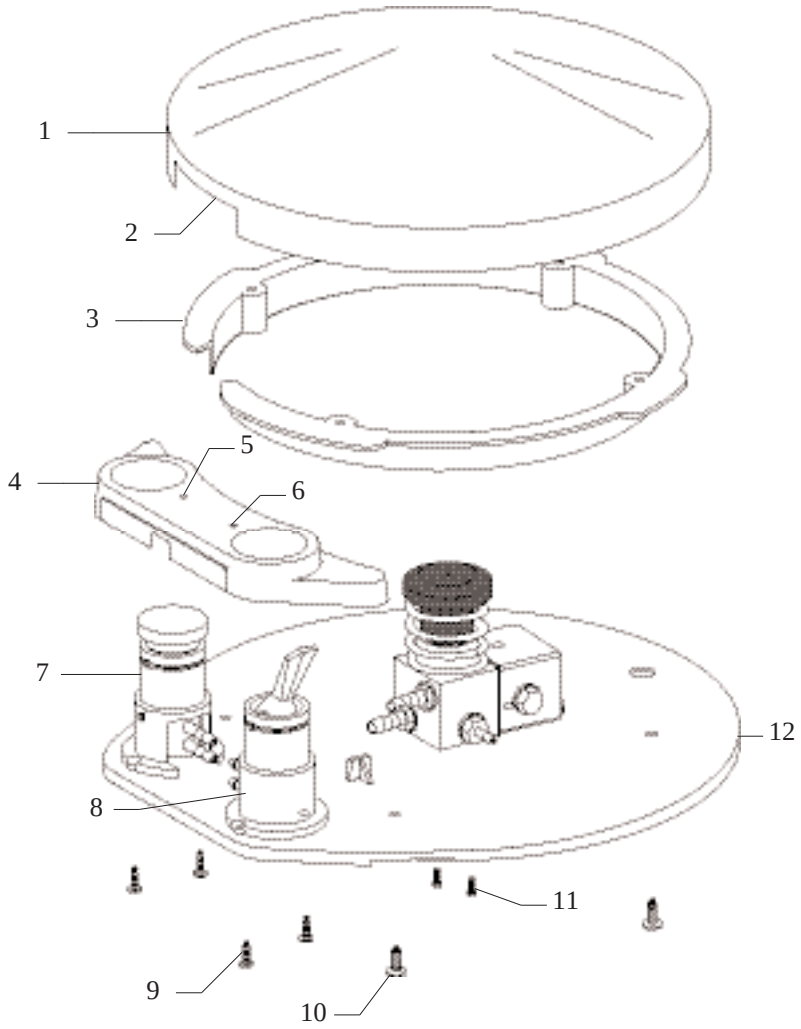


Figure 36. Identifying the foot control components.

Foot Control Accessory Button (P/N 38.0610.00)

Wet/Dry Toggle (P/N 38.0604.00)

Item #	Part Number	Description
1	38.0070.00	Actuator button
2	38.0075.03	Toggle lever, Surf 6
3	38.0066.00	Cap
4	22.0040.00	Spring, helical compression
5	010.056.00	Retainer spring
6	011.016.00	Pin
7	38.0072.03	Holder, Surf 6
8	007.002.00	Setscrew, cup point, 6-32 x 3/16
9	33.0134.00	Two-way micro valve
10	33.0138.00	Three-way micro valve

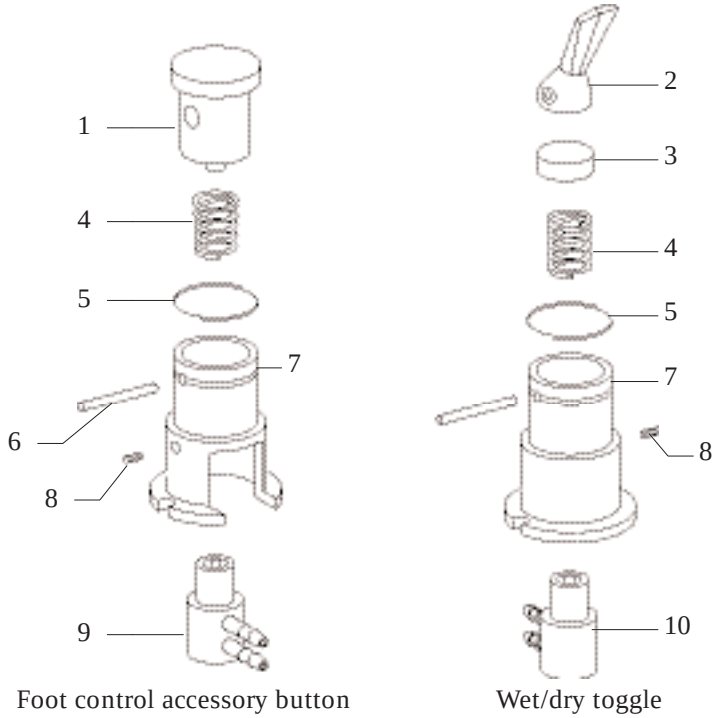


Figure 37. Foot control accessory button and wet/dry toggle component identification.

Foot Control Valve

Item #	Part Number	Description
1	023.805.01	Barb, 1/4" x 10-32, .760 OD x .47, pkg 10
2	004.005.02	Flat nylon washer, .187 ID, pkg 10
3	023.004.03	Barb, 1/8" x 10-32, pkg 10
4	013.011.00	Spring, helical compression
5	38.0054.02	Diaphragm, 3/4"square x .013 thick, pkg 10
6	22.0778.00	Valve stem with O-rings
7	38.0056.00	Signal relay body valve
8	002.102.00	Socket head screw 4-40 x 7/8", zinc
9	021.016.04	Hex plug, 10-32, pkg 10
10	10.0440.00	Spring, compression .93 OD x 250
11	030.001.02	O-ring, .029 ID x .040 wide, pkg 10
12	030.012.02	O-ring, .364 ID x .070 wide, pkg 10
13	22.0060.00	Poppet
14	22.0050.00	Cap
15	22.0580.00	Spring, compression, .312 OD x .25
16	38.0760.00*	Piston

* Item not for sale.

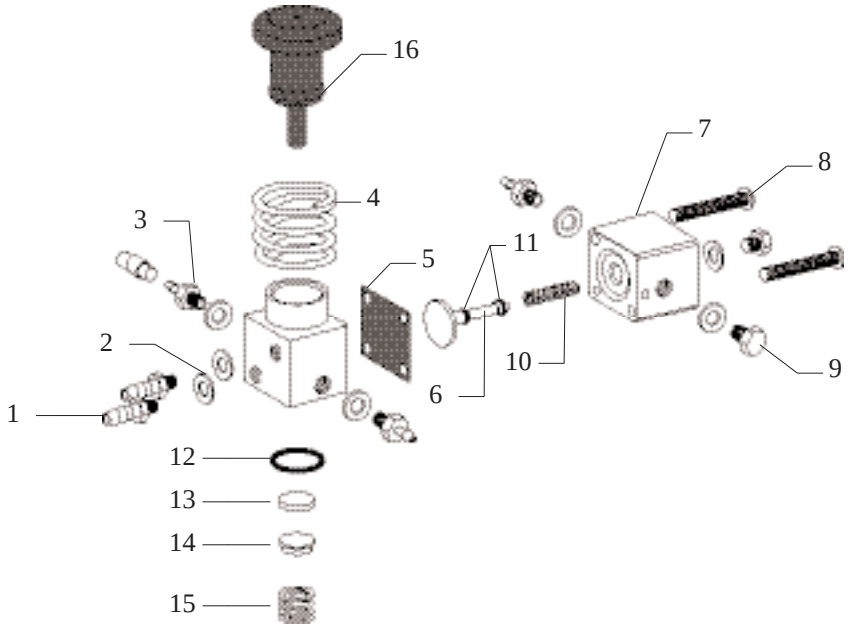


Figure 38. Identifying the foot control valve components.

Tray Holders

Continental Tray Holder
(P/N 77.0294.01)

Continental tray holders can be mounted on the left or right side above the delivery system.

Item #	Part Number	Description
1	002.023.01	Hex head screw, 3/8-16" x 1-1/4"
2	004.019.00	Spring washer, .384 ID stainless steel
3	004.172.00	Thrust washer, .375 ID
4	016.102.00	Thrust bearing, .375 ID
5	77.0198.00	Screw cover, Surf 4
6	004.242.00	Flat polyethylene washer, .387 ID
7	005.012.03	Button head socket screw, 10-32 x 3/8", stainless steel
8	77.0190.00	Bracket, Surf 4
9	75.0017.00	Melamine tray holder, Surf 4
10	77.0189.00	Arm, Surf 4
11	005.026.00	Button head hex screw with patch lock, 1/4-20 x 3/4
12	77.0194.00	Top base, Surf 4
13	77.0196.00	Bottom base, tray holder, Surf 4
14	77.0332.00	Base level, Surf 4
15	77.0192.00	Elbow cover, Surf 4
16	002.024.00	Socket head screw, 4-40 x 3/4

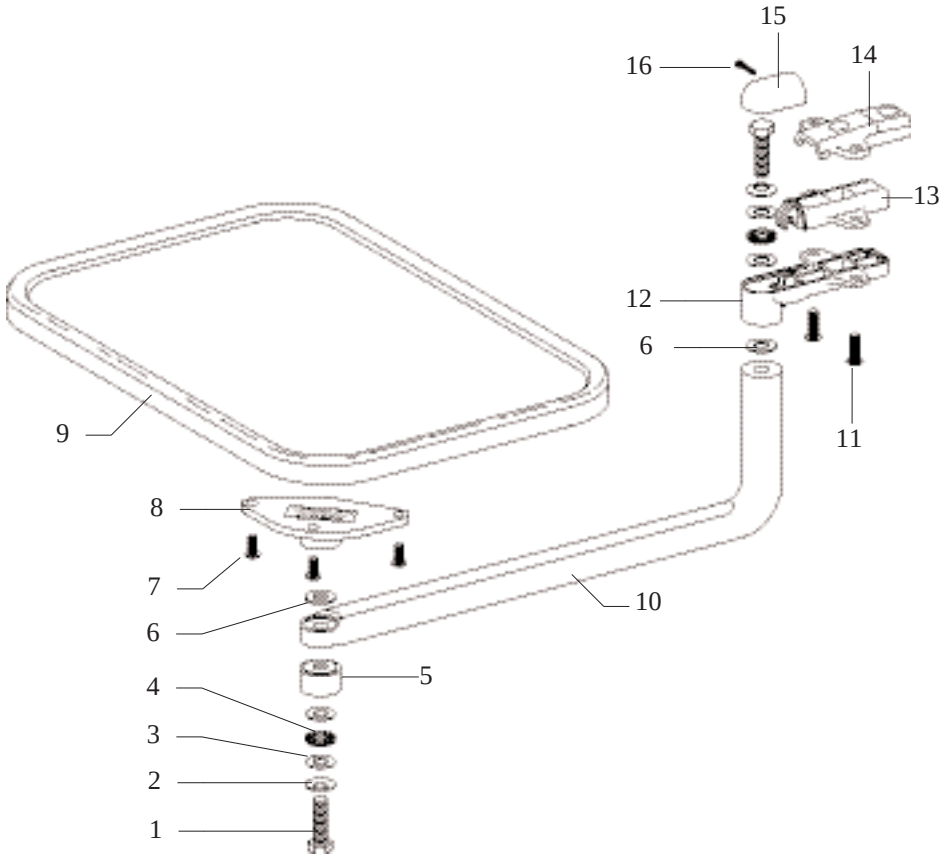


Figure 39. Identifying Continental tray holder components.

Traditional Tray Holder (P/N 77.0294.00)

The traditional tray holder can be mounted on the left or right side below the delivery system.

Item #	Part Number	Description
1	002.023.01	Hex head screw, 3/8-16" x 1-1/4"
2	004.019.00	Spring washer, .384 ID stainless steel
3	004.172.00	Thrust washer, .375 ID
4	016.102.00	Thrust bearing, .375 ID
5	77.0198.00	Screw cover, Surf 4
6	004.242.00	Flat polyethylene washer, .387 ID
7	005.012.03	Button head socket screw, 10-32 x 3/8", stainless steel
8	77.0190.00	Bracket, Surf 4
9	75.0017.00	Melamine tray holder, Surf 4
10	77.0189.00	Arm, Surf 4
11	005.026.00	Button head hex screw with patch lock, 1/4-20 x 3/4
12	77.0194.00	Top base, Surf 4
13	77.0196.00	Bottom base, tray holder, Surf 4
14	77.0332.00	Base level, Surf 4
15	77.0192.00	Elbow cover, Surf 4
16	002.024.00	Socket head screw, 4-40 x 3/4
17	77.0197.00	Arm extender, Surf 4
18	005.157.00	Hex head screw

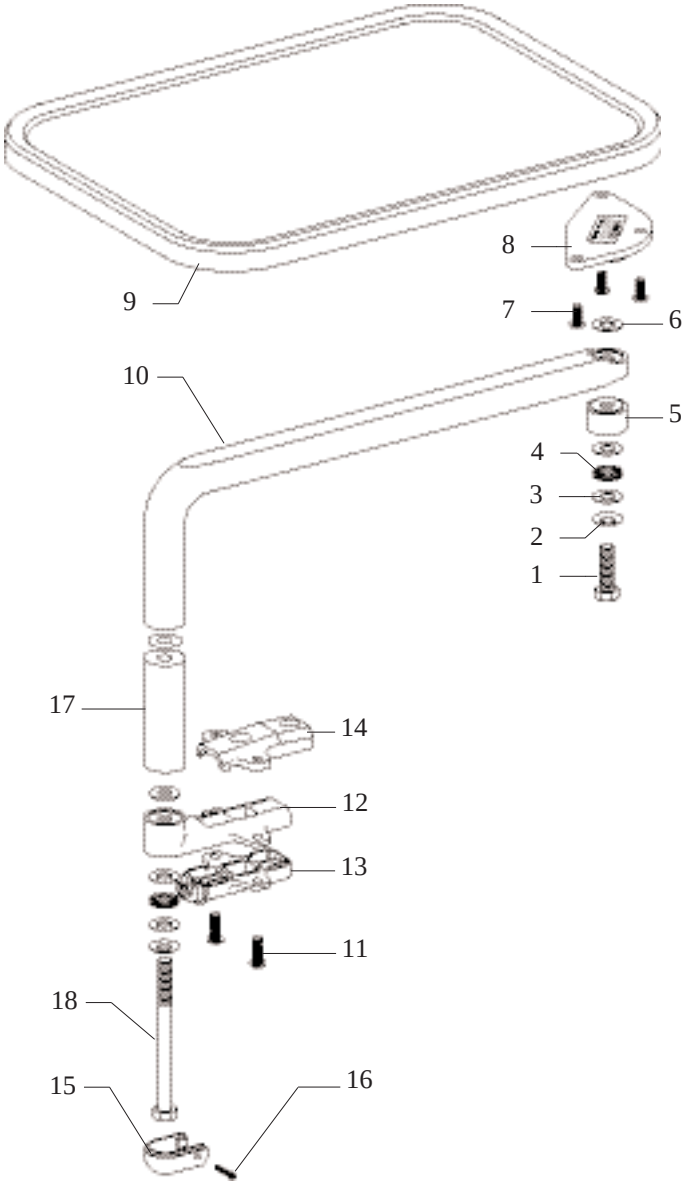


Figure 40. Identifying Traditional tray holder components.

A-dec 531 Monitor Mount

The A-dec 531 monitor mount is intended for use only with the A-dec 511 chair. It mounts on the front-mount arm and casting. Level the monitor mount with the leveling cam and the leveling bolts. The screws to attach the monitor to the mount come off the back of the monitor.

Item #	Part Number	Description
1	77.0103.00	Lower bearing, Surf 4
2	77.0102.00	Upper bearing, Surf 4
3	001.088.00	Socket head screw, 10-32 x 5/8" stainless steel
4	—	Clutch assembly
5	004.141.00	Flat washer, .261 ID
6	006.052.00	Locking nut, 1/4-20"x 7/16" x 5/16"
7	002.119.00	Socket head screw, 1/4-20" x 2-3/4" stainless steel
8	002.094.02	Button head screw, 10-32 x 1/4" stainless steel
9	77.0213.00	Small cover, Surf 4
10	77.0026.00	Monitor mount cover
11	77.0112.00	Mounting bracket
12	002.130.00	Socket head screw, 10-32 x 3/8"
13	—	Handle bracket kit
14	002.130.00	Screws

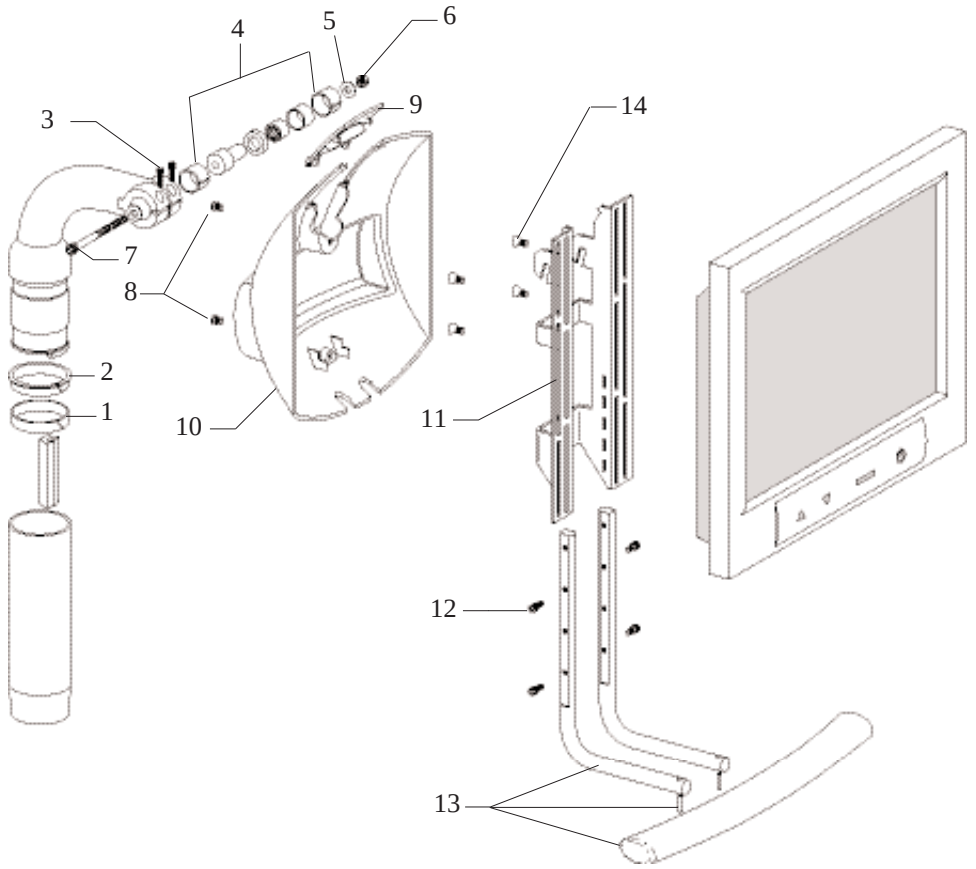


Figure 41. Identifying A-dec 531 monitor mount components.

The Self-Contained Water System (P/N 14.0468.00)

The A-dec self-contained water system is a closed system, which isolates treatment water from the municipal water supply. The A-dec 500 water bottle is designed to prevent cross-contamination during refilling. The pickup tube is located inside the bottle assembly and is not exposed to outside contaminates.

Air pressure forces water from the water bottle into the pick-up tube. Water is distributed through the chair air/water manifold to the delivery system syringe and handpieces, assistant's syringe, and cuspidor cup fill.

WARNING: Use only A-dec water bottles. Do not use other brands, or damaged bottles. They can pose a serious safety hazard if broken while pressurized. The A-dec plastic water bottles cannot withstand heat sterilization. Attempting to do so will damage the bottle and the sterilizer.

Item #	Part Number	Description
1	035.048.01	O-ring, .114 ID x .070W, pkg 10
2	010.002.00	Retaining ring, ext, .187 ID
3	031.130.01	O-ring, 1.612 ID x .103 W, pkg 10
4	14.0467.00*	Pick-up tube, 7.8"
5	14.0458.00	Clamp, Surf 4
6	005.110.00	Button head socket screw, 10-32 x 1/2"
7	14.0466.00	Water bottle base

* Item not for sale.

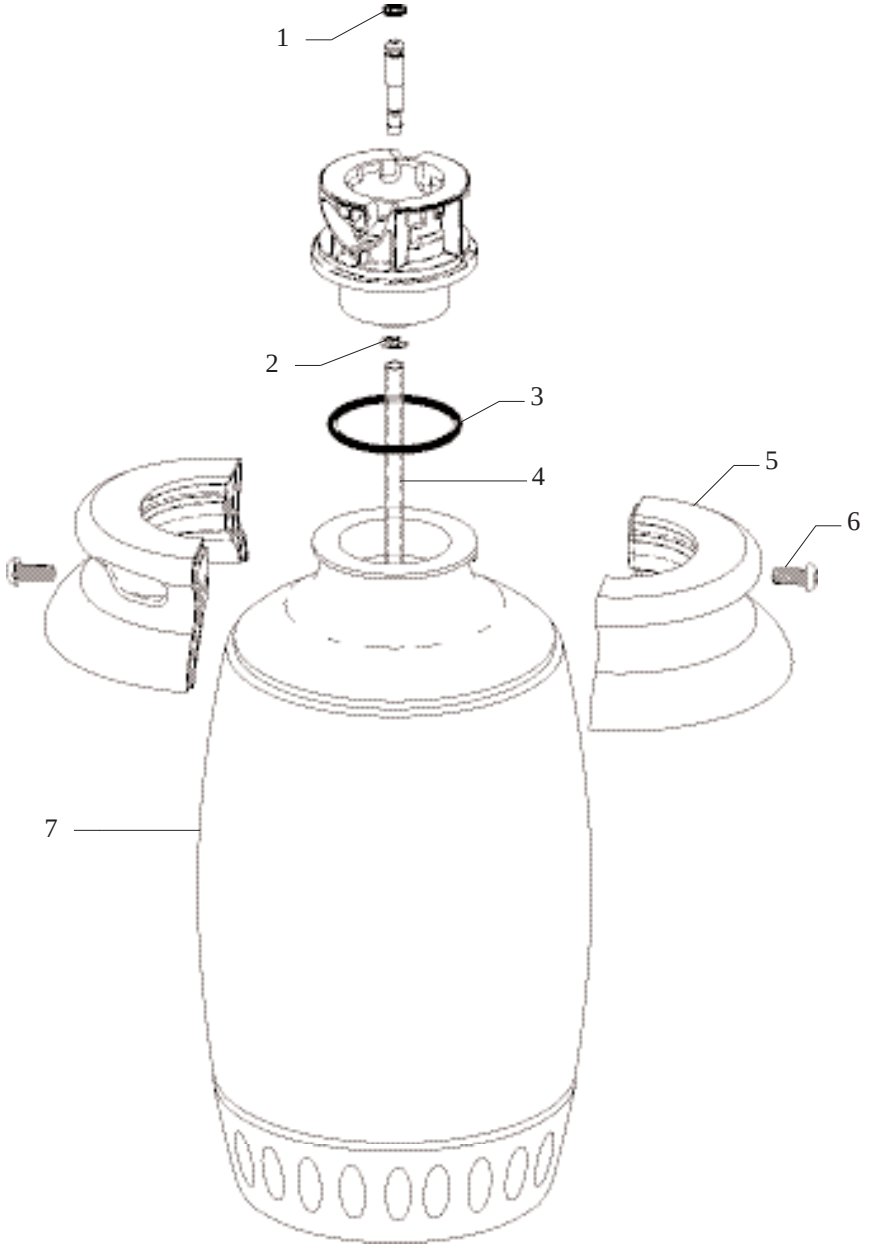


Figure 42. Self-contained water bottle components.

Water Bottle Housing and Receptacle (P/N 90.1101.00)

The water bottle housing and receptacle assembly will mount on the front-mount arm and uses a 2 liter A-dec 500 water bottle. The same receptacle can be disassembled from the housing and mounted inside the support center.

Item #	Part Number	Description
1	14.0455.02	Housing, Surf 4
2	034.213.00	O-ring, .921 ID x .139 W
3	002.112.00	Socket head screw, 10-32 x 7/8"
4	023.809.00	Restrictor setscrew, 10-32

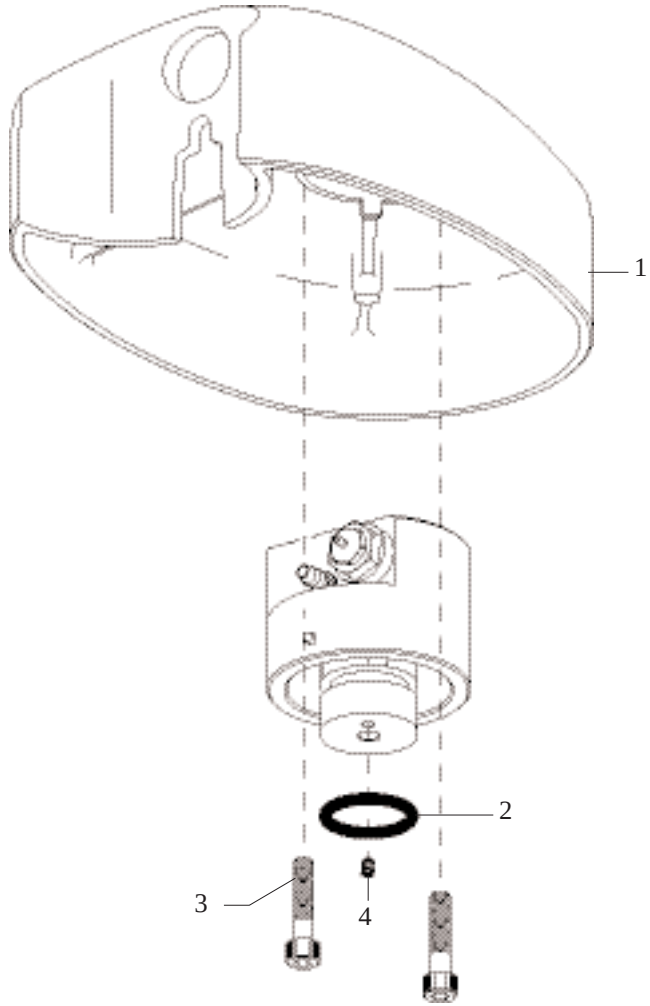


Figure 43. Self-contained water bottle components.

A-dec 500 Control block

How to Dismount the Control Block

1. Loosen the hex screw holding the master toggle mounting bracket to the delivery system platform.
2. Slide the bracket toward the back of the delivery system.
3. Lift the control block from the back, unhooking the front of the b

Item #	Part Number	Description
1	38.1785.01	Drive air stem with O-ring
2	38.1777.00	Control block
3	38.0526.00	Air coolant stem with O-ring
4	38.1783.00	Dry cartridge assembly
5	38.0516.00	Water flow adjustment stem with O-ring
6	38.1780.00	Water cartridge assembly
7	023.004.03	Barb, 1/8 x 10-32, pkg 10
8	004.005.02	Washer, flat nylon, .187 ID, pkg 10
9	001.240.00	Screw, socket head, 6-32 x 3/4
10	38.1778.00	Control block cap
11	38.1787.00	Control block diaphragm
12	023.805.01	Barb, 5/16 x 10-32, pkg 10
13	38.1800.00	Barb retainer

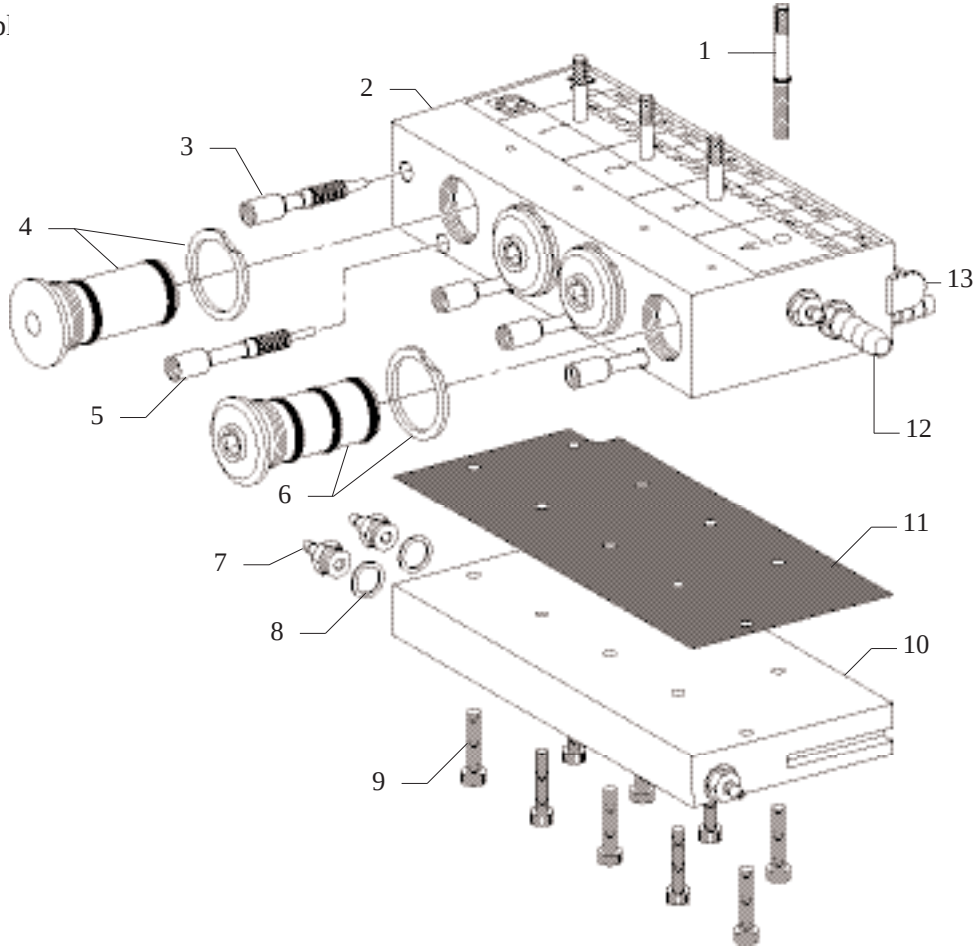


Figure 44. Components of the A-dec 500 control block.

How to Adjust Handpiece Controls

The adjustment controls for air coolant and water coolant flow are located on the side of the delivery system. The drive air adjustment stem is located on top of the control block for each handpiece position.

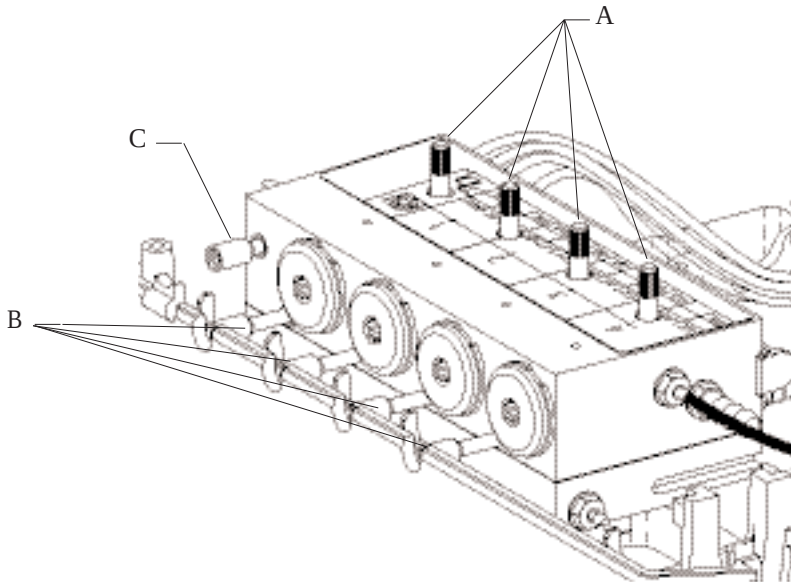


Figure 45. Location of the air and water coolant adjustments. (A) drive air adjustment stem; (B) water coolant adjustment stem; (C) air coolant adjustment stem

Drive Air

1. Use a handpiece pressure gauge to adjust the drive air for each handpiece tubing.
2. Install a bur into the handpiece and activate the position.
3. Fully depress the foot control.
4. Adjust the drive air flow (controls are on the top of the control block).

Air turbine handpieces should be set to 40 psi. EA-50LT electric micromotors (controller) should be set at a minimum of 60 psi.

NOTE: There is a digital gauge inside the delivery system that reads drive air pressure only at the control block. For accurate handpiece pressure settings use a pressure gauge at the end of the handpiece tubing.

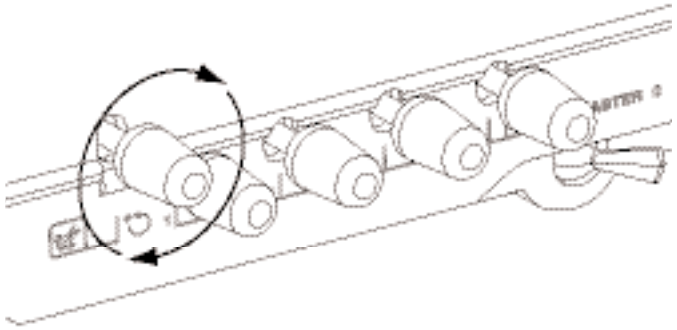


Figure 46. Rotate the adjustment stem counterclockwise to increase flow and clockwise to decrease flow.

Water Coolant

1. Flip the wet/dry toggle on the foot control to the ON position.
2. Install a bur into the handpiece and activate the position.
3. Fully depress the foot control.
4. Turn the water coolant adjustment key to adjust the flow to fit the operator's needs.
5. Repeat steps two through four for each wet handpiece.

Air Coolant

Adjusting the air coolant for one handpiece sets it for all of the positions.

1. Flip the wet/dry toggle on the foot control to the ON position.
2. Install a bur into a handpiece and activate the position.
3. Fully depress the foot control.
4. Adjust the handpiece air coolant adjustment key to create a cooling mist at the bur.

Intraoral Light Source Voltage

The intraoral light source voltage adjustment on the A-dec 500 delivery system is located on the delivery system circuit board. The voltage is preset to 3.2 volts at the lamp terminals when the lamp is On.

1. Determine the handpiece wire length and recommended bulb voltage.
2. Use a voltmeter to measure the voltage at the delivery system circuit board IOLS terminal.

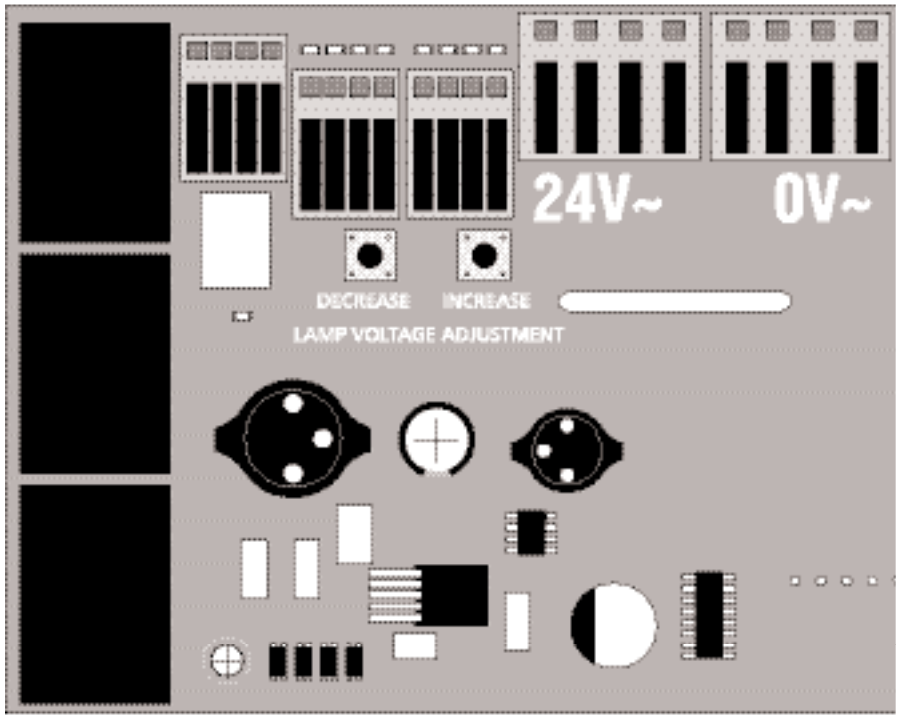


Figure 47. Use the buttons labeled **Decrease** and **Increase** to adjust the voltage for the intraoral bulb in the handpiece.

Length and Voltage Table		
Wire length in A-dec tubing		Voltage at terminal strip
		A-dec/W&H, Bien Air, or other bulbs rated at 3.5V
(in)	(cm)	VDC +/- .02
48	122	3.51
54	137	3.54
60	152	3.56
66	168	3.59
72	183	3.62
78	198	3.65
84	213	3.67
90	229	3.69
96	244	3.71
102	259	3.74
108	274	3.76
114	290	3.79
120	305	3.82
126	320	3.85
132	335	3.57
138	351	3.90
144	366	3.93
150	381	3.96
156	396	3.99

How to Level and Make Adjustments

Front Mount

Level

Position all front-mount modules, (e.g., delivery system, flexarm, tray holder assemblies) to align with the centerline of the chair.

1. Use the bubble level to determine when the correct front mount adjustments have been made.
2. Loosen the stabilizing screws and flanged nuts.
3. Adjust the leveling cam for side-to-side leveling.
4. Use one of the leveling bolts to adjust the front-to-back leveling. Assure both bolts are touching the casting when the delivery system is level front-to-back.
5. Tighten the leveling cam securely.
6. Tighten the stabilizing screws until the screws make contact with the casting when all of the front mount leveling adjustments have been made. Do not overtighten.

NOTE: You may need to lower the back to improve access.

7. Securely tighten the flanged nuts.

Tension Adjustment

If the front-mount arm drifts, adjust the front-mount tension. To adjust the front mount tension, tighten or loosen the rotation bolt connecting the front-mount arm to the front-mount casting. Turning the rotation bolt clockwise increases the tension on the arm and counterclockwise decreases the tension.

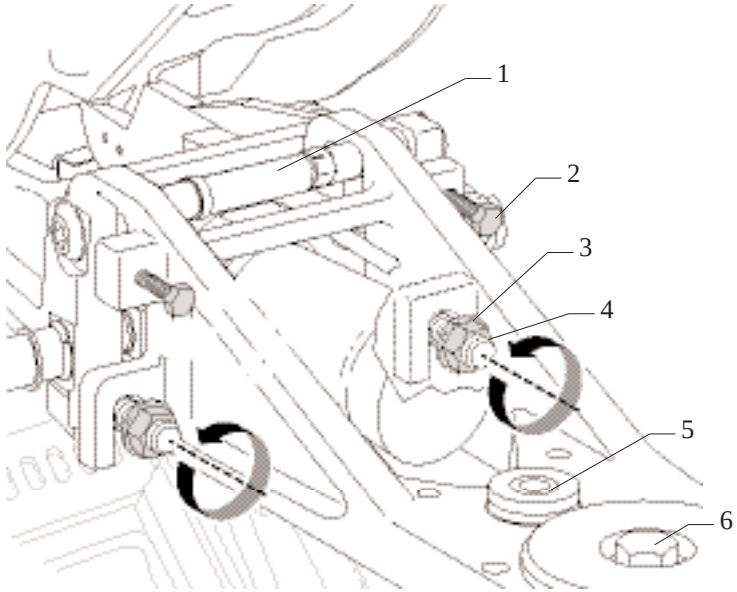


Figure 48. Leveling and adjusting the front mount arm.

Item #	Description
1	Leveling cam
2	Stabilizing screw, 1/4-20" x 2-1/4"
3	Flanged nuts
4	Leveling bolts
5	Bubble level
6	Rotation bolt

Delivery System

Front-to-Back Leveling

1. Remove the flexarm front knuckle covers.
2. Position the delivery system in line with the flexarm.
3. Tighten or loosen the adjustment screw on the underside of the front knuckle until the delivery system is level front-to-back.
4. Replace the covers.

Side-to-Side Leveling

Alternately tighten and loosen the two leveling screws on the underside of the delivery system until it is level side-to-side. Tighten both screws when level.

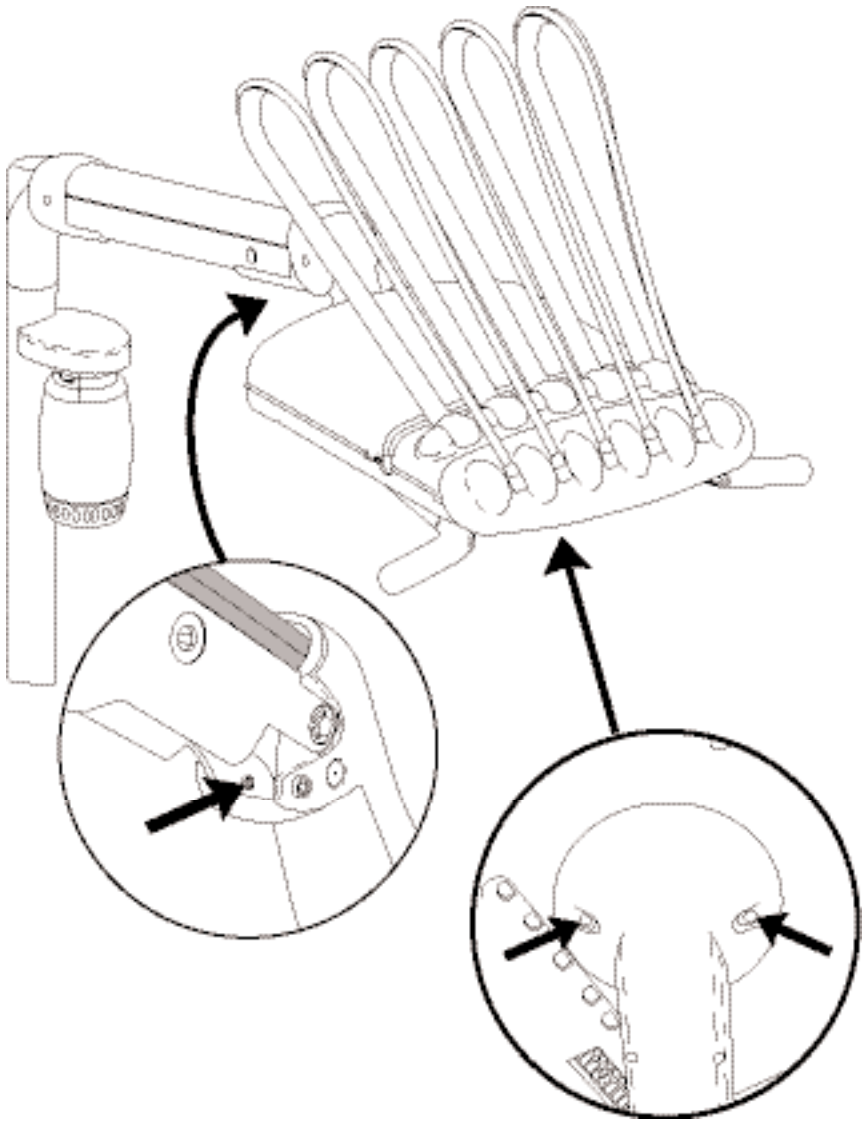


Figure 49. Level the delivery system in two locations.

Rotational Tension Adjustment

Tighten or loosen the friction adjustment screw located in the center of the delivery system structural platform to adjust the rotational tension.

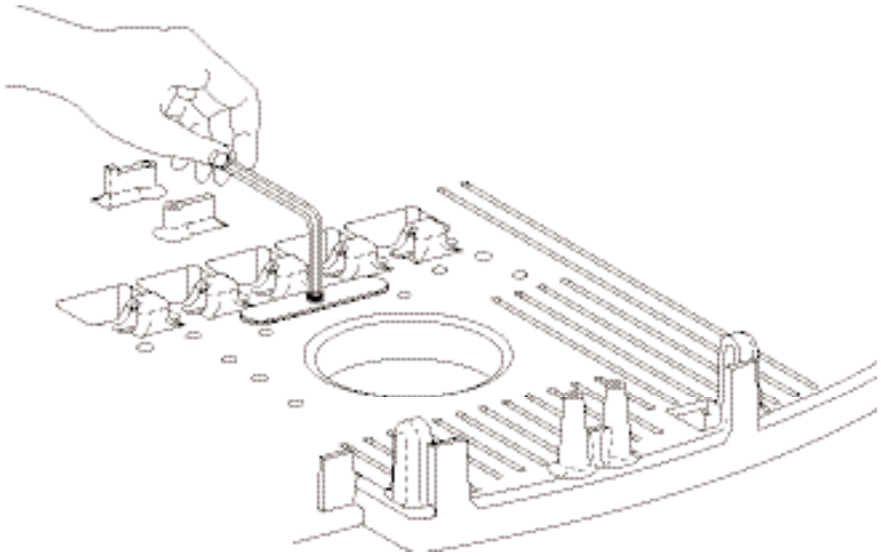


Figure 50. Adjust the delivery system rotation tension.

Tray Holder

Level

The tray holder assembly can be mounted on either side of the delivery system. To level the tray holder front-to-back or side-to-side:

1. Position the tray holder directly in front of the delivery system.
2. Loosen one of the tray adjustment screws under the delivery system.
3. Tighten the opposite screw until the satisfactory position is reached.
4. Tighten both screws.

Tension Adjustment

To tighten the rotational tension of the tray holder, turn the hex bolt under the tray clockwise. To loosen the rotational tension, turn it counterclockwise. To adjust the rotational tension of the tray arm, tighten or loosen the hex bolt at the delivery system end of the arm.

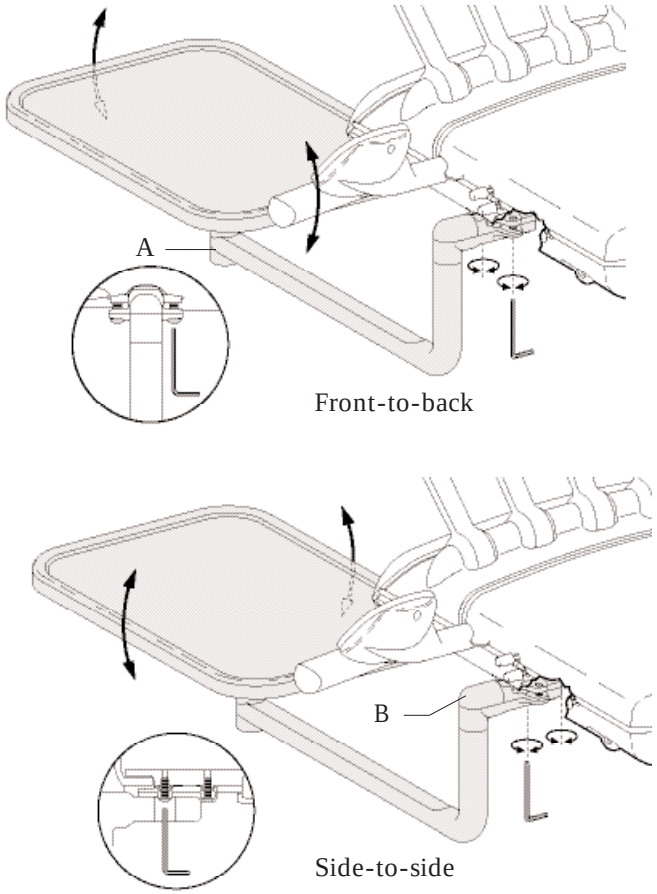


Figure 51. Level the tray holder front-to-back and side-to-side. (A) adjust for tray rotation; (B) adjust for arm rotation

How to Adjust the Front Monitor Mount

There are two main adjustments that can be made to the monitor: the tilt and drift friction. If you have a support side monitor, refer to *Support Side Monitor Adjustments*.

Tilt Friction

The tilt friction can be adjusted by tightening or loosening the tilt friction adjustment screw located on the top of the monitor mount.

Drift Friction

The drift friction can be adjusted by tightening or loosening the drift adjustment screw located on the top of the monitor mount.

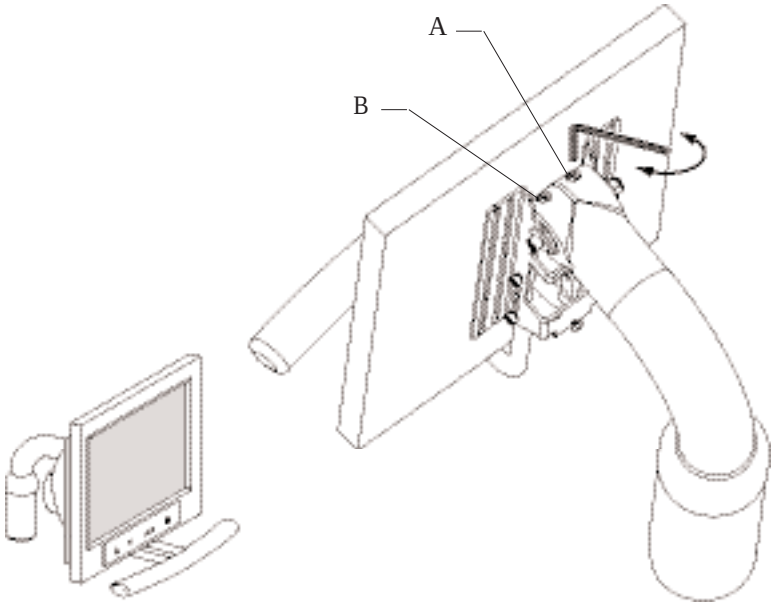


Figure 52. Monitor adjustments. (A) tilt friction adjustment screw; (B) drift friction adjustment screw

Minimum Monitor Specifications:

Digital Monitor Requirements

- Medical-grade monitor
- 15" diagonal active display
- 1024 x 768 resolution
- Digital inputs
- VESA mounting compliant
- SVGA

Analog Monitor Requirements

- Color palette adjustments
- 13" HDTV flat panel for analog integration
- NTSC or PAL format
- Video inputs
- Composite video display capability
- RCA connection port

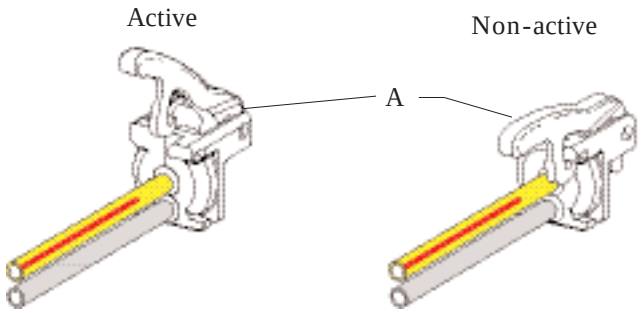
How to Troubleshoot the A-dec 532/533 Delivery System

Tips and troubleshooting information are listed in the tables to assist in diagnosing delivery system problems. These tables are not intended to cover every situation, but do include the most common problems that may be encountered.

Problem	Possible Cause	Action
No water coolant to all the handpieces	Water bottle is empty	Press the water button on the doctor's syringe, to verify water is available at the control block. Fill the water bottle with treatment water.
	The wet/dry toggle on the foot control is in the dry position	Pick up a wet handpiece, and move the wet/dry toggle to the wet position. If a deluxe touchpad is installed, verify the water coolant icon appears on the screen. Press the foot control to test the unit.
	Water coolant flow controls require adjustment	See *Delivery System Adjustments - Water Coolant.*
	No water coolant signal from the foot control wet/dry toggle	Disconnect the water coolant signal tubing from the foot control at the inline connector in the chair lift arm. With the wet/dry toggle in the wet position (toward blue dot), step on the foot control. There should be 80 psi (5.52 bar) of air at the tubing end. If you have no air, repair or replace the wet/dry toggle.
		Check the water coolant air tubing for kinks or obstructions.
		Verify the water coolant icon appears on the deluxe touchpad when the handpiece position is activated.
	Water coolant relay is not activated	Check the LED **(DS5)** for water coolant signal is activated on the delivery system circuit board. If so, manually open the water solenoid.
No water to all handpieces and the syringe	Water bottle is empty	Refill bottle with treatment water.
	Self-contained water system regulator has failed	Replace the water bottle receptacle.
	Restrictor setscrew is plugged	Remove the restrictor setscrew and use air to blow out debris inside the water bottle receptacle assembly. Reinstall the restrictor setscrew.

Problem	Possible Cause	Action
No water coolant to one handpiece	Water coolant adjustment stem is closed or requires adjustment	See *Delivery System Adjustments - Water Coolant*.
	Deluxe touchpad water coolant icon is not on when handpiece position is activated	Activate handpiece and press water coolant icon on the touchpad or move the foot control wet/dry toggle. The water coolant icon should appear on the display.
	Handpiece tubing or terminal plugged	Remove handpiece and coupler from tubing. Operate foot control with water toggle on. Check to see if water is in the green handpiece tubing at the control block.
	Water coolant cartridge has failed	Exchange the failed cartridge with known good cartridge and test the handpiece position.
Too much water coolant flow and unable to decrease it	Not enough holdback air from the flush toggle	Verify 80 psi (5.52 bar) air at flush toggle inlet Verify 80 psi (5.52 bar) air at flush toggle outlet Verify 80 psi (5.52 bar) at control block inlet Plumb unregulated air to the flush toggle inlet and plug the regulated air tubing.
	Control block diaphragm has failed	Replace the control block diaphragm.
Sputtering water from syringe and handpieces	Faulty or dirty O-ring on barb of pickup tube	Replace O-ring on pickup tube barb of the water bottle.
Intermittent water coolant to handpieces	Faulty control block diaphragm	Replace the diaphragm.

Problem	Possible Cause	Action
Water leaks from vent hole in control block when a wet handpiece is in use	Faulty water coolant cartridge	Replace water coolant cartridge.
A wet handpiece drips water while in its holder	Faulty water cartridge	Replace the water cartridge.
	Faulty control block diaphragm	Replace diaphragm.
Water leaks from the handpiece control block	The water coolant stem is leaking water	Replace the stem or the O-rings on the stem.
Water continues to flow after foot control is released	Pinched water coolant signal tubing	Remove handpiece and coupler. Locate the clear tubing from the foot control and check for water coolant signal.
	The foot control main valve is sticking	Install a foot control field service kit in the foot control.
	Plugged handpiece or coupler	Remove handpiece and coupler and retest water coolant flow.
	Water coolant flow set too high	Adjust water coolant flow to a minimum setting.
	Flush system holdback has failed	Check for 80 psi (5.52 bar) air pressure into the flush toggle. As a test, temporarily connect unregulated air to the flush toggle inlet and test the unit. If the flush holdback does not function, remove and replace the control block diaphragm.
Any handpiece drips when holder is activated, but foot control is not activated	No holdback from flush valve	Replace O-rings on flush valve stem.
Water continues to flow after foot control is released only in air/water combined mode	Faulty relay stem in foot control	Replace the stem, or the O-rings on the stem.
Can not flush one or more handpiece tubings	A dry cartridge is in place for this handpiece	Change the dry cartridge to a water cartridge.
	Handpiece or coupler plugged	Remove handpiece and coupler and test flush.
	Inadequate signal air pressure from the flush toggle to the water coolant cartridge	Check for 80 psi (5.52 bar) air pressure from the flush toggle when it is held open.

Problem	Possible Cause	Action
Unable to configure DCS to recognize new handpiece (deluxe touchpad only)	Handpiece not recognized by DCS	Configure handpiece position on touchpad.
	Handpiece type is not listed as a choice	Assign the handpiece as "other."
	Holder valve is inactive (locked open)	Activate the holder valve by unhooking the valve arm.  Figure 53. Active and non-active handpiece positions. (A) actuator
	Holder valve does not exhaust holdback air when the handpiece is picked up	Replace failed holder valve.
	No power to micromotor handpiece controller	Assure the micromotor controller has 24 VAC.
	No data line or a faulty data line to micromotor handpiece controller	Replace data line.
Unable to combine air and water coolant functions (deluxe touchpad only)	Deluxe touchpad has not been programmed for combined air/water coolant function	Press and hold **Program** and either the air or water coolant button for three seconds. Three beeps signal the functions are now combined.
	One of the solenoids has failed or is disconnected from the delivery system circuit board	Verify the coolant LEDs (**DS5** and **DS6**) are illuminating on the delivery system circuit board. If not, assure the solenoid is attached to the delivery system circuit board. If attached, replace the solenoid and verify coolant operation.

Problem	Possible Cause	Action
A button on the touchpad does not work	Faulty data line from touchpad	Replace data line.
	Faulty touchpad	Verify the touchpad circuit board is snapped into the plastic cover. Replace touchpad.
	Faulty data line from delivery system to chair circuit board	Replace delivery system data line.
Deluxe touchpad screen is blank, or the status icon does not light when the master toggle is on.	No power to touchpad	Verify that **DS1** is illuminated on the delivery system circuit board. If DS1 is not illuminated, check for 24 VDC across **J1** and **J2** on the circuit board. Check for an open circuit breaker on the 511 chair power supply.
Low air pressure to syringe or handpieces	Plugged filter on air filter regulator in floor box	Replace the filter.
Handpiece holder valve leaking air	Faulty holder valve	Replace holder valve.
Handpiece holder valve not exhausting	Holder valve is locked open (inactive)	Activate the holder by unhooking the the valve arm.
	Faulty holder valve	Replace the holder valve.